

## ENERGY CONSUMPTION METER

### KILL A WATT™

This allows you to measure energy consumption of appliances simply. Simply connect these appliances to the Kill A Watt™, and it will assess how efficient they really are. Large LCD display will count consumption by the Killowatt-hour, same as your local utility. You can calculate your electrical expenses by the day, week, month, even an entire year. Also check the quality of your power by monitoring Voltage, Line Frequency, and Power Factor.



- Large LCD display
- Cumulative Killowatt-Hour Monitor
- Forecast Your Costs
- Also display Volts, Amps, Watts, Hz, VA
- 0.2% Accuracy

**Part No. 01P4400 • Price: \$28.95**

## BK PRECISION PROGRAMMABLE CAPACITANCE SORTING METER

### MODEL 890B

The Model 890B Capacitance Meter features a large 4 1/2 LCD with dual display, 11,000 counts resolution, and 9 automatically selected ranges with full scale value from 1.0pF to 50mF. Designed to meet the latest international safety standards, the meter's dedicated chip and microprocessor allow programmable high/low limits or pre-programmed standard capacitor tolerances, making it ideal for measuring values, inspection, sorting capacitors and testing capacitors against standard tolerances. Optional software and cabling is available for PC based data logging and monitoring.



- Dual display simultaneously displays value and deviation from selected tolerance
- Sort on preset tolerance of 1, 5, 10%
- Program unique values to sort for specific circuit applications
- USB PC interface for data logging software available

Part No.	Description	Price
01CT890	Capacitance Sorting Meter	\$120.00
01AK80B	Software & USB Cable	58.00

## VIZATEK

### PORTABLE DIGITAL IC TESTER HAND-HELD UNIT

#### MODEL VZ4

This unit will readily test TTL, CMOS series ICs. Can identify unknown part numbers.



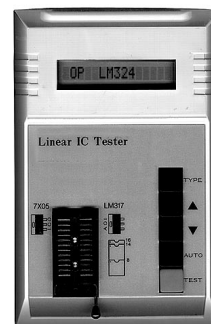
- Supports the following:  
**TTL Series:** 7400, 74LS00  
**CMOS Series :** CD4000, CD4500
- **Display:** 16 characters in 1 line LCD
- **Test Pins:** 14 to 24 pins
- **Power:** 9V battery (included); 5V DC-Adaptor (Optional)
- **Weight:** 1 lb.
- **Size:** 6.3" x 4.3" x 1.8"

Part No.	Description	Price
01VZ4	Digital IC Tester, Portable	\$225.00

## RSR LINEAR IC TESTER PORTABLE

### MODEL LP2

- Easy to operate tester, specially designed for linear IC's (op-amps, comparators, opto, regulators, special function devices, transistor arrays).
- Light, compact, low power consumption (battery operated).
- **Average Search Time:** 0.8 seconds.
- **Display:** 16 characters in 1 line LCD
- **Test Pins:** 8 ~ 16 pins.
- **Test Voltage:** ±5V
- Equipped with empty-load test. Auto Power Off.
- **Dimensions and Wt.:** 6.3 x 1.8" x 4.4"; 12 oz.



**Part No. 01LP2 • Price: \$795.00**

## RSR LINEAR IC TESTER

### MODEL ICT-7A

- Reliable desktop design.
- 16 x 1 character 9 x 7 dot matrix LCD display.
- Built-in 6 functions and 10 numerical keys.
- **Test Voltage:** ±5 ~ ±24V
- Auto identifies the unknown ICs and lists the same function IC number.
- **Dimensions & Wt.:** 13" x 4" x 12"; 3.3 lbs.
- **Test IC:** Timer, Op Amp, Comparator, Regulator, Zener Diode, Photo Coupler, Driver, Communication IC, Switching Power Supply IC.



**Part No. 01ICT-7A • Price: \$2,500**

## TESTERS

### INDUCTIVE TRACER

#### THE HOUND 3 PROBE



- New headlights help light your way and reduce fluorescent light noise
- Streamline, shielded design to suppress feedback squeal
- Bandpass filter to suppress 60Hz and high frequency noise
- Earphone jack, improved sensitivity, new conductive bill tip
- Adjustable volume/sensitivity control
- High gain, high impedance amp
- LED intensifies as signal gets stronger

### TONE GENERATOR

#### THE FOX

- Generates 3 distinct tones usable for wire tracing
- Line powered in Tone Mode
- LED indicator for continuity
- Supplies "Talk Power" to allow communicating between handsets (talksets) or powering a telephone
- Convenient operation from a standard 9V battery
- One year warranty



Tone Generator  
The Fox

The FOX is a lightweight, compact, battery powered instrument designed to perform a variety of tests on telephone lines. Alligator clips and a modular plug allow the FOX to be quickly connected to stripped wires, a terminal panel, or a standard modular jack (single line). Two selector switches set the function of the FOX, while an LED acts as a visual indicator.

Part No.	Description	Price
34TR3392	Hound 3 Probe Only	64.95
34TR3399	Fox 2 & Hound 3 + Case	98.00

## TRIPLETT TEST LEADS AND ACCESSORIES

### FOR CABLE FAULT FINDERS / TDR



Get More Functionality Out of Your TDR with These High Quality Test Leads and Inductive Tracers

Part No.	Description	Price
34TR79-793	BNC to Spike and Pin Cushion Clip (18" Lead) For use with "TR3271"	\$26.95

## TONE GENERATOR & PROBE

The Tone Generator is designed to perform a variety of tests on network cable, telephone lines. Alligator clips and testing plug allow the tone generator to be connected to stripped wires, wall plates, a terminal panel, or modular single line jacks quickly. The Probe can trace tone generator signals through wall, wood and many other non-metal surfaces.



#### TONE GENERATOR:

- Two position switch for single or multi tone signal
- Tri-color LED for line polarity, continuity and voltage testing
- Testing leads and modular cables for individual wire tests or modular jack tests

#### AMPLIFIER PROBE:

- Non-conductive, inductive tip
- Hi-gain, hi-impedance amplifier
- Sound/visual/both modes for noisy or dark work areas
- Sound with adjustable volume control

**Power:** 9V batteries. Includes custom carrying case

**Part No. 34TGP • Price \$49.00**

## BK PRECISION TONE GENERATOR AND CABLE TRACER KIT

### MODEL 262

The **Model 262** is a kit that combines the BK Precision **Model 260** Tone Generator and **Model 261** Cable Tracer.

#### Tone Generator Model 260

The Tone Generator is a handheld, battery-powered instrument designed to perform a variety of tests on un-energized telephone lines or LAN cables. Alligator clips and a standard RJ11 plug allow the tone generator to be connected to stripped wires, terminal panels, wall plates, or modular single line jacks.



- **Dimensions:** (H x W x D): 7" x 1.87" x 1.12" (177.8 x 47.5 x 28.4 mm)
- **Weight:** 5.8 oz. (164.4 g)
- **Power:** Standard 9-volt battery

#### Cable Tracer Model 261

The Line Tracer is a hand-held inductive tracer that will help to identify wires without piercing the insulation. It can trace Tone Generator signals through dry wall, wood and many other non-metal surfaces.

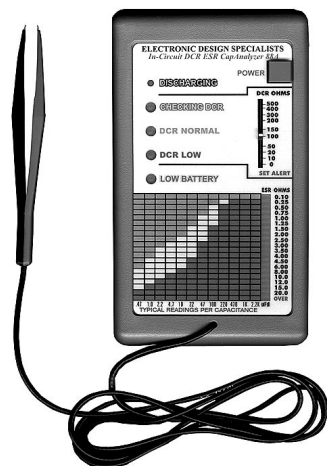
- Hi-gain, hi-impedance amplifier
- Capable of identifying tones up to 12 inches away (under ideal conditions)
- Rugged, moisture resistant, mylar cone speaker
- **Dimensions:** (H x W x D): 7.37" x 1.87" x 1.12" (187.1 x 47.5 x 28.4 mm)
- **Weight:** 4.9 oz. (138.9 g)
- **Power:** Standard 9-volt battery

**Part No. 01BK262 • Price: \$74.00**

## IN-CIRCUIT CapAnalyzer

### MODEL 88A

Checks electrolytic caps *in-circuit* with great accuracy in 3 seconds. Eliminates need to remove caps from board to test. Correctly measures resistance (DCR) and equivalent series resistance (ESR), which is the trick to locating bad caps in-circuit.



- Portable, hand-held, AAA battery operated (*included*).
- Automatically discharges capacitor.
- Checks for DCR leakage and shorts.
- **Range:** 0.47 to 2,200  $\mu$ F electrolytics.
- Measures ESR from 0.1 to 20 ohms.
- Beeps from 1 to 5 beeps depending on quality and ESR of cap.
- Gold plated tweezer probe for radial and surface mount caps.
- Color chart shows typical good, fair, bad readings.

**Part No. 01CT88A • Price: \$220.00**

## BK PRECISION PARTS TESTER HAND HELD

### MODEL 815

- Tests transistors, SCR's, diodes & LED's
- Measures capacitance & resistance
- Tests batteries under actual loaded condition
- Large 0.8", high contrast LCD readout



**Part No. 01CT815 • Price: \$105.00**

## RSR RS-232 BREAK OUT BOX

- Provides quick and easy way to troubleshoot or customize any RS-232 data line
- Line powered
- Rewires RS-232 interface
- Dual state LED monitors both positive and negative levels
- Monitors lines 2, 3, 4, 5, 6, 8, 15, 17, 20 and 24
- 48 test points; 20 jumpers included
- Rugged plastic case



**Part No. 03BKBX • Price: \$26.90**

## TRIPLETT WireMaster XR-2

### LAN CABLE TEST SET WITH TRACER TONE

- Verifies point-to-point wiring of twisted pair LAN cables, telephone cables and other type cables with RJ-45 and RJ-11 connectors.
- Tests LAN crossover and telephone patch cables.
- Generates 2 distinct warble tones usable for cable tracing.
- Checks continuity in cable conductors.
- 8 LED's identify source and destination of each conductor.
- Checks straight-through, reverse wired and crossover patch cables.
- Remote testing of long cable runs up to 1,000 ft.
- User selectable features include:
  - RJ-11 4 conductor of 6 conductor test.
  - Forward or reverse sequencing on transmitter.
  - High or low pitch tracer tone.
  - Local or remote test mode on receiver.
- Carrying case included.



**Part No. 34CTXR2 • Price: \$95.00**

## TRIPLETT CABLE TESTER-5 TYPES WIRE MASTER XR-5

### FEATURES

- Tests 5 types of cables RJ-45, RJ-11, BNC, 1394, USB
- Simple one button test
- Ergonomic portable handheld design
- Tests installed wiring or patch cables
- Remote attaches to main unit
- 600 ft. test distance (RJ-45/RJ-11/BNC)
- Built-in battery test
- LED's indicate connections and faults
- Beeper provides audible annunciation of test results
- Tests shields in 1394 and USB cables
- Test shielded (STP) or unshielded (UTP) LAN cables
- One year warranty

### INCLUDES:

- WireMaster XR-5
- BNC terminator
- BNC, RJ-11 and RJ-45 jumper cables
- Carrying case
- 9 volt battery
- Instruction manual

**Part No. 34TR3260 • Price: \$129.00**



## TRIPLETT CABLE FAULT FINDER TDR

- Low cost digital cable length meter / TDR
- Find cable length or distance to fault from **ONE END**
- Built-in tone generator for cable tracing and identification
- Simple operation with automatic distance display
- Internal library of 39 standard cable types
- Suitable for testing all types of communication cables.

**Part No. 34TR3271 • Price: \$225.00**





## SUBSTITUTION BOXES

### SUBSTITUTION BOXES, RESISTANCE, CAP AND INDUCTANCE

#### COST EFFECTIVE

Affordable decade boxes with rugged quality and high precision. Perfect for educational use, R & D, service, production line testing and maintenance.

#### All Units Feature:

- Sturdy, multi-way binding posts
- Slide switches add/subtract for desired value
- Durable ABS plastic housing case

#### Model RBOX-408 Resistance Decade Box

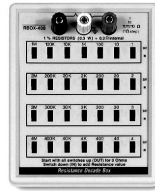
- 1 ohm to 11 Meg
- 1 ohm per step, 1% resistors 0.3W
- Seven decades of resistance

#### Model CBOX-406 Capacitance Decade Box

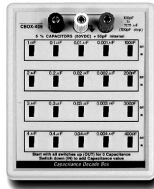
- 100 pF to 11µF
- 100 pF per step, 5% caps, 50V
- Five decades of capacitance

#### Model LBOX-405 Inductance Decade Box

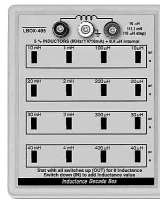
- 10µH to 111.1 mH, wide range and high resolution
- Four decades of inductance
- Slide switches that allow the user to simply add or subtract for desired value.



RBox-408



CBox-406



LBox-405

Part No.	Description	1-9	10+
01RBOX408	Res. Sub. Box	\$90.00	\$85.00
01CBOX406	Cap. Sub. Box	115.00	110.00
01LBOX405	Ind. Sub. Box	128.00	119.00



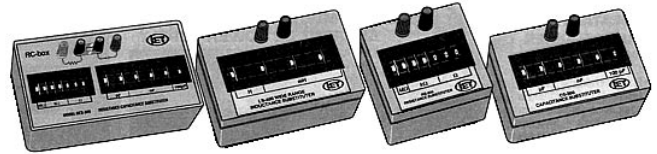
### SUBSTITUTION BOX RESISTANCE & CAP

- Convenient selection of standard resistors and capacitor values separately or in series and parallel RC combinations
- 36 resistor ranges in values from 15 ohms to 10M, 1 watt 10%
- 18 capacitor ranges in values from 100pf to .22 µF, 600V 10%
- Perfect for educational experiments and circuit designs.
- Compact design
- Test leads with alligator clip connectors included



Part No. 01RC10 • Price: \$170.00

### RESISTANCE, CAPACITANCE & INDUCTANCE SUBSTITUTION BOXES



RC-Box

L-Box

R-Box

C-Box

Dial in the desired value using the convenient side-by-side thumb-wheel switches. Color-coded switches separate various ranges. High-impact plastic cases.

#### RESISTANCE

**Model RS200 – 1% Accuracy**

**Model RS201 – 0.1% Accuracy**

1Ω to 9,999,999Ω in 1Ω steps. Rated 0.5W. Residual impedance 0.3Ω. 3 1/4" x 3 1/4" x 2 1/4".

#### CAPACITANCE

**Model CS300 – 4% Accuracy**

**Model CS301 – 1% Accuracy**

100pF to 99.9999µF in 100pF steps. Rating 100V (20V for 10-100µF scale). Residual impedance 30pF. 4 1/4" x 3 1/4"

#### COMBINED RESISTANCE/CAPACITANCE

Combines the features of a resistance and capacitance. Resistance and capacitance can be used independently, in series, or in parallel. Shorting link allows them to be coupled or separated. 7 1/2" x 4 1/4" x 2 1/4"

**Model RCS500**

Combines the features and specifications of RS200 and CS300.

**Model RCS502**

Combines the features and specifications of RS201 and CS301.

#### INDUCTANCE

**Models LS400A and LS400**

**Model LS400A** (Standard Model) features 0-999mH in 1mH steps. **Model LS400** (Wide Range Model) features 0-9.999H in 1 mH steps. Both models have:

- 1% accuracy (1.5% max)
- Residual impedance 0.2Ω typical
- 4 3/4" x 3 1/8" x 2 1/4"

Part No.	Description	Price
01RS200	Resistance – 1% Accuracy	\$185.00
01RS201	Resistance – 0.1% Accuracy	340.00
01CS300	Capacitance – 4% Accuracy	235.00
01CS301	Capacitance – 1% Accuracy	360.00
01RCS500	Combined Resis. Capacit.– Standard Model	370.00
01RCS502	Combined Resis. Capacit. – Precision Model	680.00
01LS400A	Inductance – Standard Model	695.00
01LS400	Inductance – Wide Range Model	980.00

# **CUSTOM PART & COMPONENT KITS PACKAGED TO FIT YOUR EXACT NEEDS**

## **YOU ALWAYS HAVE IT YOUR WAY!**

**CUSTOM PACKAGING • WIDE SELECTION OF QUALITY, BRAND NAME TOOLS • NUMEROUS OPTIONS...INCLUDING RESISTORS, CAPACITORS, SEMI-CONDUCTORS, WIRE TOOLS, TEST LEADS, PROBES, TEST EQUIPMENT AND MUCH MORE!**

### **NO INVENTORY TO MAINTAIN**

Kits are shipped pre-packaged.

### **ELIMINATES INVENTORY INVESTMENT**

Your kits arrive just when you need them.

### **YOU DON'T HANDLE PARTS OR COMPONENTS**

Every kit is custom packaged with the exact parts necessary to meet your individual course objectives.

### **ELIMINATES PARTS PROCUREMENT**

You get all the advantages of our centralized purchasing. These saving are automatically passed on to you without the bother or trouble of procurement.

### **SELECT THE EXACT EQUIPMENT YOU NEED:**

#### **CAPACITORS**

Ceramic Disc  
Mylar  
Tantalum  
Electrolytic

#### **ELECTRICAL HARDWARE**

Wire  
Fuses  
Jacks  
Banana Plugs  
Binding Posts  
Connectors  
Sockets  
Breadboards  
Test Leads

#### **ELECTRONIC EQUIPMENT**

Logic Probes  
Power Supplies  
Multimeters  
Oscilloscopes  
Educational  
Trainers

#### **INTEGRATED CIRCUITS**

TTL  
CMOS  
Linear  
Memory  
Microprocessor  
Peripheral  
Components

#### **MAGNETIC PRODUCTS**

Power  
Transformers  
Audio  
Transformers  
Inductors  
Cores

#### **OPTO DEVICES**

LEDs  
Displays  
Bar Graphs  
Arrays  
Dot Matrix  
Fiber Optic  
Devices

#### **POTENTIOMETERS**

Single Turn  
Multi Turn  
Panel Mount

#### **RESISTORS**

Carbon Film  
Metal Film  
Wire Wound  
Networks

#### **SEMICONDUCTORS (DISCRETE)**

Diodes  
Transistors  
Diacs  
SCRs  
Triacs

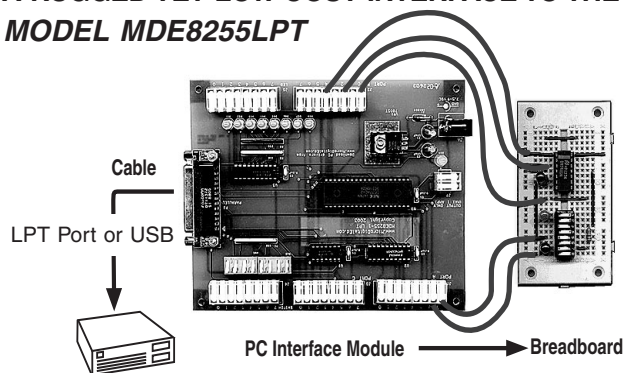
#### **SWITCHES**

Toggle  
Slide  
Push Button  
Rotary  
Dip

## TRAINERS

### PC INTERFACE TRAINER

A RUGGED YET LOW-COST INTERFACE TO THE PC  
**MODEL MDE8255LPT**



This Trainer provides a means of interfacing with the PC via the LPT port. The 8255 Trainer is perfect for both desktop and laptop computers. All it needs is a 9V DC adapter.

Due to the internal structure of MS Windows, separate drivers are required for both Assembly language and Visual C++ environments. To download these drivers, visit the following site: <http://www.microdigitaled.com/>

#### TRAINER FEATURES

- Can be used for both Desktop / Laptop PCs
- Single 8255 chip
- Ports A, B, C available via terminal blocks
- Onboard TTL power supply
- 8 TTL compatible switches
- 8 LEDs for reading outputs

### TEXT BOOK

#### THE X86 PC: ASSEMBLY LANGUAGE, DESIGN AND INTERFACING

Easy to understand, step-by-step approach to teaching the fundamentals of 80X86 assembly language and PC. This edition has been updated to include coverage of 64-bit microprocessors. Lab experiments can be downloaded from website. Authors Muhammad Mazidi and Janice Mazidi



Part No.	Description	Price
01MDE8255LPT	Trainer MDE8255LPT with Cable and Voltage Adapter	\$75.00
045USB-SERIAL	Serial to USB cable	9.95

#### TEXT BOOK

31PCC1-010	The x86 PC: Assembly; 5th Edition	130.00
------------	-----------------------------------	--------

### MATRIX INDUSTRIAL ELECTRONIC CONTROLLER — MODEL MIAC-01

This can be used to control a wide range of electronic systems. Operates off 12V or 24V. It has 8 analog or digital inputs, 4 high current relay outputs and 4 motor outputs. 4 line LCD display and control keys.

- Programmable from PC using USB port
- Easy to program with flow charts, C or Assembly code
- Free copy of Flowcode (for flow charts)
- LabView and Visual Basic compatible

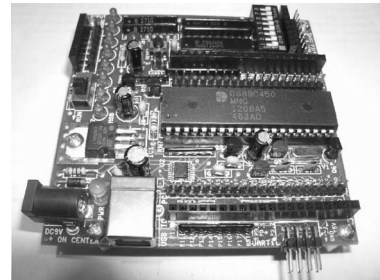


**Part No. 01MIAC01 • Price: \$209.40**

### 8051 SINGLE BOARD COMPUTER TRAINER

BASED ON DS89C430 (DALLAS SEMI)  
**MODEL MDE8051**

This development board has a Maxim Semiconductor's ultra-high-speed DS89C450 (64Kbytes) flash memory based 8051 (80C52 compatible) microcontroller installed on a DIP socket. Through the use of an USB connection, a terminal program such as hyperterminal can download the assembled or compiled hex file directly into the DS89C450 and the code you have developed can start running in the trainer right away



MDE-8051 allows beginners to learn 8051 based microcontrollers in a convenient way by providing female and male headers connecting to the I/O ports. It is very easy to prototype with a breadboard.

MDE-8051 provides 8 LEDs and a driver to allow users to test I/O port output with minimum effort. In addition, MDE-8051 has 8 DIP slider switches to let users input logic signals with simply flipping switches.

Using a terminal program, one can program the microcontroller by flipping the slide switch to program or run. A DIP socket allows the programmed microcontroller to be removed for its ultimate application and re-program another chip repetitively.

#### ADDITIONAL WEB RESOURCES

How to test and program MDE8051

<http://www.microdigitaled.com/hardware/8051/using.html>

Information about DS89C420:

[http://www.maxim-ic.com/quick\\_view2.cfm/qv\\_pk/2963](http://www.maxim-ic.com/quick_view2.cfm/qv_pk/2963)

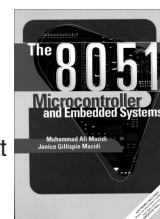
Software Downloads

[http://www.microdigitaled.com/software\\_8051\\_html.html](http://www.microdigitaled.com/software_8051_html.html)

### TEXT BOOK

#### THE 8051 MICROCONTROLLER AND EMBEDDED SYSTEMS

This book uses a step-by-step approach to teach the fundamentals of assembly language programming and interfacing of the 8051 microcontroller. Simple, concise examples are utilized to show what action each instruction performs, then a sample is provided to show its application. For anyone interested in learning about the 8051 microcontroller.



**Included accessories:** Power supply, serial cable for connection to the computer

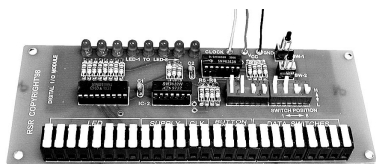
Part No.	Description	Price
32MT8051	8051 Single Board Computer Trainer	\$75.00
31M8051	<b>TEXT BOOK</b> - The 8051 Microcontroller and Embedded Systems	136.50



## RSR DIGITAL I/O MODULE

### KIT / ASSEMBLED

This trainer comes in kit form. It provides all necessary features for experimentation and prototyping of digital circuits. This trainer includes 8-SPDT toggle DIP switches, 8-LED indicators, clock conditioning circuit, two pulse switches, and 26 screwless terminal blocks for easy circuit connection. The kit comes with easy to follow instructions.



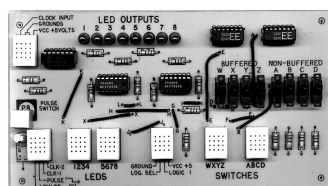
Part No.	Price
3200DIGKIT	\$27.95
3200DIGASSMB	38.95

## RSR DIGITAL TRAINER

### MODEL NO. DT3

#### KIT VERSION ONLY

This Digital Trainer comes in kit form and provides all the functions necessary for digital experimentation and prototyping. The DT3's features include 8 binary switches (4 buffered), 8 LED indicators, a clock conditioning circuit, pulse switch with 0 to + 5V or + 5V to 0V output and 7 board mounted tie blocks for easy circuit connections. The kit comes with easy to follow assembly instructions.



Part No.	Price
3200DT-3	\$24.95

## velleman USB EXPERIMENT INTERFACE BOARD

The K8055 interface board features 5 digital input and 8 digital output channels. There are also 2 analog inputs and outputs with 8 bit resolution. Number of inputs/outputs can be expanded by connecting up to a maximum of four cards the PC's USB connectors. All communication routines are contained in a Dynamic Link Library (DLL). Write custom Windows (98SE, 2000, Me, XP) applications in Delphi, Visual Basic, C++ Builder or any other 32-bit Windows application development tool that supports calls to a DLL.



#### DIAGNOSTIC/TEST SOFTWARE:

- Separate output / input test
- Clear all / set all function
- Counter function on inputs 1 and 2
- Analog output set sliders
- Analog input bar-graph indicator
- Conversion time 20ms per command

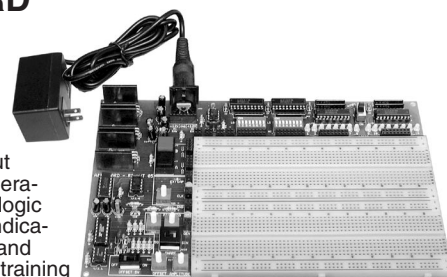
#### SPECIFICATIONS:

5 digital inputs, 8 outputs  
2 analog inputs and outputs  
Power supply through USB  
Diagnostic software with DLL included  
**Requirements** – Pent. CPU, SB1.0, Windows 98SE, CD ROM player & mouse

Part No.	Description	1-4	5+
32VK8055	Kit Version	\$44.95	\$39.95
32VKMV110	Assembled Version	79.00	75.00

## ANALOG-DIGITAL TRAINER SINGLE BOARD

Compact, affordable and practical. Offers all the necessary features for any curriculum requiring electronic lab training and experimentation. Includes a multiple output power supply, signal generator, independent clocks, logic switches, tri-state LED indicators, frequency function and more. This is a powerful training and prototyping tool. Comes complete with 12vdc adapter with din connector to mate directly to board, plus operation manual.



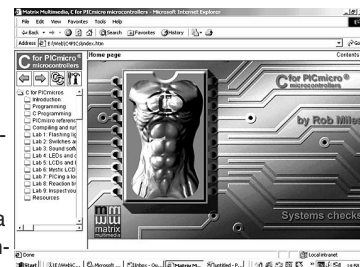
- **Portable:** Easily transported. Large solderless breadboard area (1,640 tie points)
- **Power Supply:** ±9V and +5V @ 500ma
- **Digital:** 16 tri-state multi-color **LED indicators** which remain in a normally lit pattern which alerts user that the LED is functioning (color then changes when in operation). Two **independent clocks**, 16 **logic switches**, 2 **momentary switches**.
- **Analog:** Sine and Square wave generator. Variable amplitude, variable offset, variable frequency to 20K
- Operation manual and power adapter (±12V) included
- Optional – 344 page circuit experiment and training book used by leading technical colleges. Emphasizes the relationship between design, analysis and testing. To fully utilize optional Experiment Book including circuit analysis, some additional hardware items (available from ELEC-TRONIX EXPRESS) and software may be needed.

Part No.	Description	Price
01ADASM	Single Board Analog-Digital Trainer	\$74.95
2700MJW70	140 Piece Jumper Wire Kit	3.90
31WI470474341	344 Page Experiment/Training Book	42.95



## MATRIX EDUCATION SERIES "C" FOR PICmicro® MICROCONTROLLERS CD ROM

The C for PICmicro microcontrollers CD ROM is designed for students and professionals who need to learn how to use C to program embedded microcontrollers. It also provides all the software tools needed to actually program a PIC16F84 – including a full C compiler and device programmer that is compatible with the Matrix PICmicro development board. Although the course focuses on the use of the PIC series of microcontrollers, this CD ROM will provide a relevant background in C programming for any microcontroller. The CD ROM assumes no previous experience of C programming – the only assumed knowledge is an ability to use a web browser and an understanding of basic digital electronics. In addition to the required underpinning knowledge PIC-C includes 9 complete projects, each of which has up to 5 subsections, that take users through the material in a relevant context.



Part No.	Description	Price
01ELPCCST3	"C" PICmicro® Student Vers.	\$68.00
01ELPCCSI3	"C" PICmicro® Single User Vers.	115.00
01ELPCC103	"C" PICmicro® 10 User Vers.	420.00

## PC TRAINERS

### RSR PLDT-2 PROGRAMMABLE LOGIC DEVICE PROTOTYPING BOARDS

WHY USE OLD, OBSOLETE TTL GATES TO IMPLEMENT COMPLEX LOGIC & STATE MACHINE DESIGNS?

with the **ALTERA® EPM7128SLC™ CPLD**

User design software available from the chip manufacturer.\* Then download your design from the PC with the parallel port cable (included). each comes with a user's manual containing a complete description of the board together with Lab experiments, power supply and cable.

\* Design software is available at the following chip manufacturer websites:  
For the **Altera** chip: <http://www.altera.com>. You can also go to the PLDT page on the *Electronix Express* website at [http://www.elexp.com/tst\\_pldt.htm](http://www.elexp.com/tst_pldt.htm) which has links directly to the software pages.

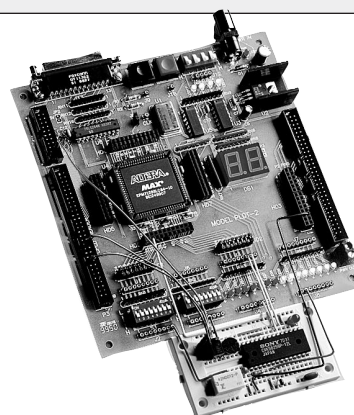
#### HAS THE ON-BOARD I/O CAPABILITY YOU NEED:

- DIP Switches
- De-bounced Momentary Switches
- LEDs
- 7-Segment Displays
- Numerous Connectors for Jumper-Wires and Ribbon Cables

#### ACCESSORY KIT (32RSRFPGAACC)

**INCLUDES:** 1 RSR MB-102 Breadboard with Wire Kit  
1 RSR LP-610 Logic Probe  
50 Breadboarding Pins

Part No.	Description	Price
01PLDT2	PLDT-2 Board	\$79.00
31CPLD	CPLD Programming Lab Manual	77.95
31P0130453056	Experiments In Digital Fundamentals With VHDL	81.95
311401840302	Digital Design With CPLD Applications & VHDL, 2Ed.	190.95
32RSRFPGAACC	Accessory Kit	19.95



**ONLY  
\$79<sup>00</sup>**



Power Supply and Cable Included

Breadboard Optional

#### CPLD PROGRAMMING & DIGITAL LOGIC SIMULATION – By Steve Waterman

A lab manual to accompany any digital electronics textbook. This lab manual can help you learn how to use Max+plusII software by Altera Corporation. This manual starts with fundamentals of logic gates, then progresses to MSI devices, latches and flip flops. Then it moves on to clock dependent circuits including counters and registers, memory addressing, and converters.



Provides laboratory exercises that support Digital Fundamentals with VHDL by Tom Floyd. The manual supports the PLDT-2 and PLDT-3 boards from RSR Electronics, as well as the DeVry University board, and the Altera University Program board.



#### DIGITAL DESIGN WITH CPLD APPLICATIONS & VHDL, 2ED

2nd edition; 896 pages. Updated Altera's Quartus II software and Lab.Source CD included with book. Thorough coverage of basic techniques and fundamentals to advanced principles.



### RSR PLDT-3 PROGRAMMABLE LOGIC DEVICE PROTOTYPING BOARDS

WHY USE OLD, OBSOLETE TTL GATES TO IMPLEMENT COMPLEX LOGIC & STATE MACHINE DESIGNS?

with the **XILINX® XC95108™ CPLD**

User design software available from the chip manufacturer.\* Then download your design from the PC with the parallel port cable (included). EACH comes with a user's manual containing a complete description of the board together with Lab experiments, power supply and cable.

#### HAS THE ON-BOARD I/O CAPABILITY YOU NEED:

- DIP Switches
- De-bounced Momentary Switches
- LEDs
- 7-Segment Displays
- Numerous Connectors for Jumper-Wires and Ribbon Cables

\* Design software is available at the following chip manufacturer website: For the **Xilinx** chip: <http://www.xilinx.com>

You can also go to the PLDT page on the *Electronix Express* website at [http://www.elexp.com/tst\\_pldt3.htm](http://www.elexp.com/tst_pldt3.htm) which has links directly to the software pages.

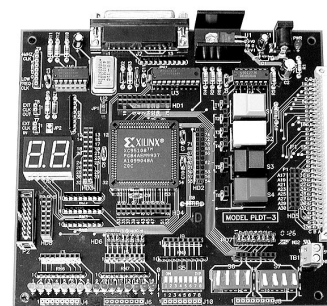
#### ACCESSORY KIT (32RSRFPGAACC)

**INCLUDES:** 1 RSR MB-102 Breadboard with Wire Kit  
1 RSR LP-610 Logic Probe  
50 Breadboarding Pins

**ONLY  
\$79<sup>00</sup>**



Power Supply and Cable Included



#### DIGITAL ELECTRONICS LABORATORY EXPERIMENTS USING THE XILINX® XC95108™ CPLD WITH XILINX® FOUNDATION DESIGN AND SIMULATION SOFTWARE

This digital laboratory manual by James Stewart and Chao-Ying Wang, published by Prentice Hall, allows introductory digital electronics students to use the Xilinx® software early in the course. Features of this manual include:

- A step-by-step introduction to Xilinx® software.
- Class-tested laboratory experiments guaranteed to work.
- More than one experiment for most typical areas to allow for greater flexibility in the laboratory environment.



Part No.	Description	Price
01PLDT3	PLDT-3 Board	\$79.00
31DELE	Digital Electronics Laboratory Experiments	84.05
32RSRFPGAACC	Accessory Kit	19.95



## terasIC FPGA ALTERA BOARD WITH USB

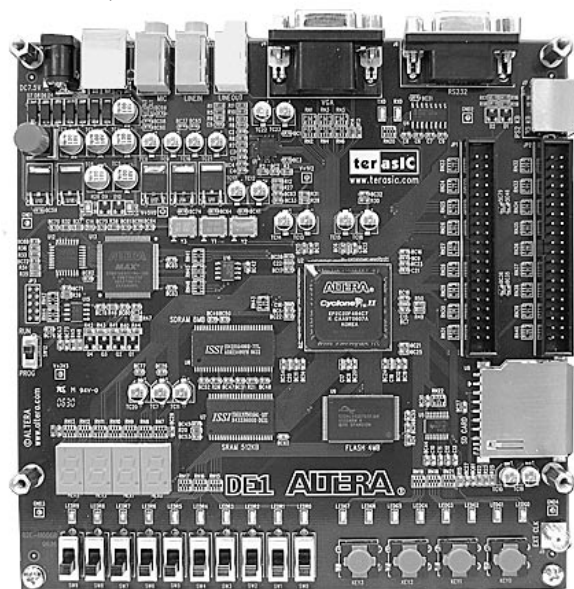
Provides ideal vehicle for advanced design prototyping in the multimedia, storage, and networking. The board offers a rich set of features that make it suitable for use in a laboratory environment for university and college courses, for a variety of design projects, as well as for the development of sophisticated digital systems. Altera provides a suite of supporting materials for the DE1 board, including tutorials, "ready-to-teach" laboratory exercises, and illustrative demonstrations.

**Altera DE1:** Available on the Altera website (<http://university.altera.com/materials/unv-dev-edu-boards.html>)

### FEATURES

DE1 board provides users many features to enable various multimedia project development. Component selection was made according to the most popular design in volume production multimedia products. The DE1 platform allows users to quickly understand all the insight tricks to design projects for industry.

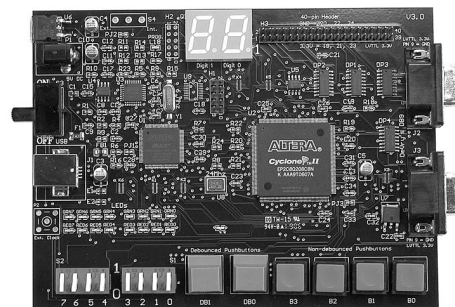
- Altera Cyclone II 2C20 FPGA with 20000 LEs
- Altera Serial Configuration devices (EPCS4) for Cyclone II 2C20
- USB Blaster built in on board for programming and user API controlling
- JTAG Mode and AS Mode are supported
- 8Mbyte (1M x 4 x 16) SDRAM
- 4Mbyte Flash Memory
- 512Kbyte(256Kx16) SRAM
- SD Card Socket
- 4 Push-button switches
- 10 DPDT switches
- 8 Green User LEDs
- 10 Red User LEDs
- 4 Seven-segment LED displays
- 50MHz oscillator ,24MHz oscillator ,27MHz oscillator and external clock sources
- 24-bit CD-Quality Audio CODEC with line-in, line-out, and microphone-in jacks
- VGA DAC (4-bit R-2R per channel) with VGA out connector
- RS-232 Transceiver and 9-pin connector
- PS/2 mouse/keyboard connector
- Two 40-pin Expansion Headers
- DE1 Lab CD-ROM which contains many examples with source code



**Part No. 01FPGA2 • Price: \$150.00**

## FPGA BOARD WITH USB PORT

- Provides means of learning and prototyping digital logic, computer systems and FPGA code. This board provides a complete low cost platform using Altera Cyclone II (EP2C8) chip connected to various LEDs, switches and 7-segment displays. One can use web edition of Altera Quartus II to design FPGA code using Verilog HDL, VHDL as well as other design methods
- USB port for transferring FPGA to chip configurations
- 8 red LEDs, 8 green LEDs
- 2 sets of 4 SPDT switches
- 2 debounced, 4 non-debounced switches
- 40 pin and 2 DB-9 I/O connectors for interfacing
- 24MHz clock; can be multiplied or divided using internal PLL



**Part No. 01FPGA4 • Price: \$149.00**



## MICROPROCESSOR TRAINER

*Model DL-030*

A highly rated 137 page Lab Manual written by a major U.S. university Professor is included with this trainer. Altera Cyclone II @ FPGA based, this unit is capable of integrating seamlessly into both Quartus II FPGA design framework and NOIS II GNU based development environment. While is as advanced enough to design and prototype complex embedded systems, students are able to create and implement designs in a little as one hour.

- Sleek design with durable portability
- Well written 137 page Student Trainer Lab manual with experiments
- Altera Cyclone II, EP3C16F256C8N FPGA
- USB interface cable, Software CD, sturdy jumpers for breadboards
- 270 tie point breadboard, 3 pushbutton switches
- LED's, 3 seven-segment displays requires Windows XP or higher, 10 Gb for installation and 4 Gb to run post installation



Part No.	Description	Price
01MPTDL030	Microprocessor Trainer	\$699.00

**Call Toll Free: 1 (800) 972-2225 • In NJ: (732) 381-8020 • Fax: (732) 381-1006 (732) 381-1572**

## SOFTWARE AND PROGRAMMERS

### **matrixmultimedia** ELECTRONIC PROJECTS

**PLATFORM: WINDOWS 3.1/95/98/NT; FORMAT: CD ROM**

- 10 projects to build
- Component lists – also included as separate files for easy access
- Fully functional schematic design and PCB layout software included on the CD (CAD Pack)
- Component and general construction guides
- Project specific construction and testing



The projects on this CD are as follows:

- |                                   |                |                          |
|-----------------------------------|----------------|--------------------------|
| • Light, Heat and Moisture Sensor | • Egg Timer    | • Power Amplifier        |
| • Logic Probe                     | • Dice Machine | • Sound Activated Switch |
| • NE555 Timer                     | • Bike Alarm   | • Reaction Tester        |
|                                   | • Stereo Mixer |                          |

Part No.	Description	Price
01ELEPSST	Electronic Projects – Student Ver.	\$59.00
01ELEPSSI	Electronic Projects – Single User	93.00
01ELEPS10	Electronic Projects – 10 User	192.00

### **matrixmultimedia** ELECTRONIC

#### **CIRCUITS AND COMPONENTS – VER. 2**

**PLATFORM: WINDOWS 95/98/NT/2000/ME; FORMAT: CD ROM**

- Highly interactive virtual labs. Clear circuit simulation.
- Spoken text caters to students with low reading ability.
- Thorough assessment – multiple choice, worksheets, fault finding circuits, written exam questions and assignments.
- Flexible resources – stand alone, in front of class, class activity on a network, revision/remediation.
- Browser based – Intranet ready.
- Teachers' notes and editable worksheets included on CD.
- Multi Sim® / Electronics Workbench® circuits provided.

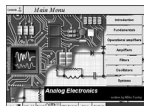


Part No.	Description	Price
01ELECCST2	Electronic Circ. & Comp – Student / Home User	\$59.00
01ELECCSI2	Electronic Circ. & Comp – Single User	93.00
01ELECC102	Electronic Circ. & Comp – 10 User Ver.	192.00

### **matrixmultimedia** ANALOG ELECTRONICS

**PLATFORM: WINDOWS 3.1/95/98/NT; FORMAT: CD ROM**

- Virtual labs
- SPICE® simulation of over 50 editable circuits
- Design parameters for circuits included
- Complete hi-fi amplifier case study
- Editable worksheets

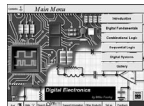


Part No.	Description	Price
01ELANAST2	Analog Electronics – Student Ver.	\$59.00
01ELANASIN2	Analog Electronics – Single User	93.00
01ELANA102	Analog Electronics – 10 User Ver.	192.00

### **matrixmultimedia** DIGITAL ELECTRONICS

**PLATFORM: WINDOWS 3.1/95/98/NT; FORMAT: CD ROM**

- Virtual labs
- Full audio commentary
- Over 20 links to pre-designed Electronics Workbench® circuits and crocodile clips
- Teachers' notes
- Editable worksheets



Digital Electronics provides a broad introduction to the principles and practice of digital electronics, including logic gates, combinational and sequential logic circuits, clocks, counters, shift registers, and displays. The CD ROM also provides an introduction to microprocessor based systems.

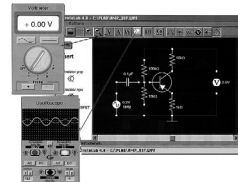
Part No.	Description	Price
01ELDIGST2	Digital Electronics – Student User	\$59.00
01ELDIGSI2	Digital Electronics – Single User	93.00
01ELDIG102	Digital Electronics – 10 User License	192.00

### **Global Specialties** PROTO LAB™ CIRCUIT SIMULATION SOFTWARE

**CREATE AND ANALYZE CIRCUITS INSTANTLY ON YOUR PC!**

#### **Release 4.0**

Protolab™, a total computer-simulated, electronics laboratory including free built-in test instruments and tools to build and test actual circuits.



- Easy-to-use interface: Create AC&DC circuits moments after installation with ProtoLab's easy "click & drag" component placement and on-line help
- Choose from a complete list of active and passive components
- Five virtual instruments allow for instant, accurate circuit analysis: Volt-meter, Ammeter, Wattmeter, Oscilloscope, Ohmmeter
- Pre-designed circuit library included

#### **SYSTEM REQUIREMENTS:**

- IBM/PC 386 or compatible with 4MB RAM
- SVGA video
- Windows 3.1 or Windows 95
- Mouse
- 3 1/2 floppy drive

**Part No. 01PL300-0007 • Price: \$49.95**

### **RSR** PIC WRITER – HANDHELD SERIAL PROGRAMMER COMPATIBLE WITH MICROCHIP® MPLAB DEVELOPMENT SOFTWARE

Low cost programmer supports many devices from PIC family. Operates with PC-compatible host system running Windows 3.X/ME/NT/2000/XP. Reads, programs, verifies EPROM and EEPROM program and data memory. MPLAB Project support to automatically download object file to PSTART. Complete with RS-232 cable, 9V universal power adapter. Includes MPLAB Development Software (CDROM).

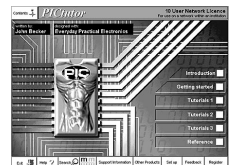


*LP-PICD is manufactured under license from MICROCHIP®*

**Part No. 01LPPSTART • Price \$205.00**

### **matrixmultimedia** ASSEMBLY FOR PICmicro® MICROCONTROLLERS CD ROM

- Virtual PIC allows full on-screen simulation programs
- Over 80 exercises
- Over 30 full working programs
- On-screen challenges
- Includes shareware assembler and send programs



The PICtutor is designed to teach users of all levels how to write assembler programs for the PIC series of micro-controllers. The CD ROM's 39 tutorial sections guide the complete beginner through PIC architecture, commands and programming techniques up to advanced programming techniques including discussion and examples of watchdog timers, interrupts and sleep modes. Over 80 exercises and challenges are provided.

Part No.	Description	Price
01PICST2	Assembly for PICmicro / Student Ver.	\$59.00
01PICS12	Assembly for PICmicro / Single User	125.00
01PIC102	Assembly for PICmicro / 10 User	375.00